

# High-Strength and Optically Transparent Fiber-Reinforced Composites, Phase I

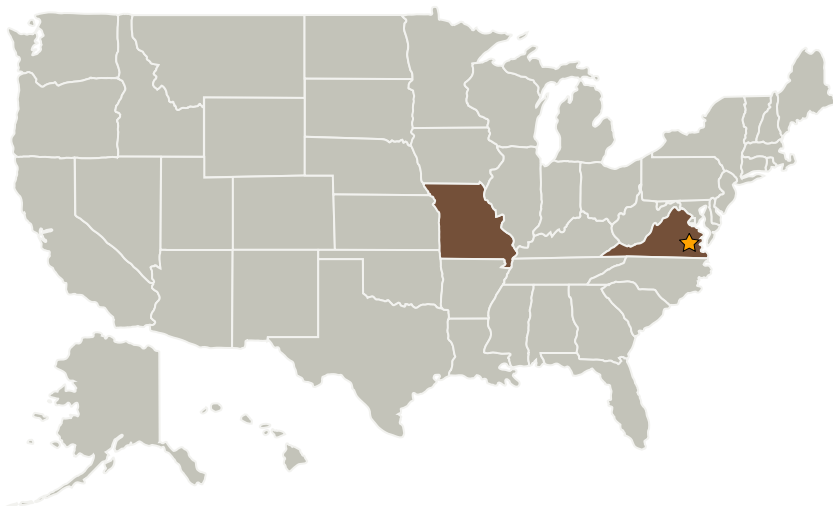
Completed Technology Project (2007 - 2007)



## Project Introduction

For many applications there exists a need for mechanically strong composite materials of high optical quality and transparency equivalent to window glass. One method of increasing the mechanical strength of polymers is to reinforce them with high-strength cylindrical glass fibers. In most cases, however, the introduction of glass fibers into an optically transparent polymer destroys the transparency of the polymer and an object at distances greater than a few feet cannot be clearly seen through them. MO-SCI Corporation proposes to develop novel large high-strength and optically transparent, flexible panels of glass fiber reinforced polymer matrix composites, as light-weight structural components, by layering a polymer matrix reinforced with glass ribbons (micron-size glass fibers with rectangular cross section) and a tough compliant polyurethane film. MO-SCI Corporation has produced research quantities of rigid epoxy-matrix composites which use glass ribbons that are index matched to the polymer matrix to be used as high-strength windows as described in U.S. patent 5,665,450 and licensed to MO-SCI Corporation. The objective of this proposal is to use this technology to produce nearly defect-free composites as demonstration samples for marketing structurally strong and impact resistant composites that are optically transparent.

## Primary U.S. Work Locations and Key Partners



High-Strength and Optically Transparent Fiber-Reinforced Composites, Phase I

## Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Langley Research Center (LaRC)

### Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

## High-Strength and Optically Transparent Fiber-Reinforced Composites, Phase I

Completed Technology Project (2007 - 2007)



Organizations Performing Work	Role	Type	Location
★ Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Mo-Sci Corp	Supporting Organization	Industry	Rolla, Missouri

## Primary U.S. Work Locations

Missouri	Virginia
----------	----------

## Project Management

**Program Director:**

Jason L Kessler

**Program Manager:**

Carlos Torrez

## Technology Areas

**Primary:**

- TX12 Materials, Structures, Mechanical Systems, and Manufacturing
  - └ TX12.1 Materials
    - └ TX12.1.1 Lightweight Structural Materials